

What is claimed is:

1. 1. A glass bulb for a cathode-ray tube comprising: a panel unit having a panel screen; a neck unit holding an electron gun; and a funnel unit having a funnel-like shape, wherein the panel unit and the neck unit are bridged by the funnel unit, wherein

the funnel unit is formed from a plurality of glass members, the plurality of glass members including at least a first glass member on a side of the panel unit and a second glass member on a side of the neck unit, and

a maximum-to-minimum thickness ratio of each of the plurality of glass members is designed to be within a range suitable for producing the plurality of glass members using pressing, the maximum-to-minimum thickness ratio being a ratio of thickness of a thickest portion to thickness of a thinnest portion.

1. 2. The glass bulb of claim 1,

wherein the plurality of glass members are prepared by using a glass material conforming to EIAJ(Electronic Industries Association of Japan)·LOF-03, and in each of the plurality of glass members, the maximum thickness is no more than substantially five times the minimum thickness.

1. 3. The glass bulb of claim 1,

wherein at least one of the plurality of glass members

3 is designed to be physically strengthened.

1 4. The glass bulb of claim 3,

2 wherein the physical strengthening is performed by
3 air-cooling a glass member molded by pressing, heating the
4 glass member again to a temperature which is 20-40°C lower
5 than an annealing point, and cooling the glass member slowly.

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1 5. The glass bulb of claim 1,

2 wherein the plurality of glass members are joined
3 by sealing with a glass frit so that inside of the glass
4 bulb is kept in a vacuum state.

1 6. The glass bulb of claim 1,

2 wherein the funnel unit is formed from two glass
3 members, which are (a) the first glass member to be joined
4 to the panel unit and (b) the second glass member to be
5 joined to the neck unit, the panel unit and the neck unit
6 being made of a glass material, and

7 wherein the first glass member and the second glass
8 member are joined at a position including an inflection
9 point on a periphery of the funnel unit on a supposed plane
10 substantially perpendicular to a tube axial direction.

1 7. The glass bulb of claim 6,

2 wherein the first glass member has substantially
3 a same shape as a shape in which a certain portion is removed

4 from the panel unit.

1 8. The glass bulb of claim 1,
2 wherein the first glass member which is to be joined
3 to the panel unit is formed in one piece and designed to
4 be physically strengthened, the panel unit being made of
5 a glass material.

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contd.
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1 9. The glass bulb of claim 1,
2 wherein a lead terminal is (a) connected to an
3 electrode formed on an inner surface of the funnel unit
4 and (b) extended to outside of the glass bulb through a
5 sealed portion, the sealed portion being where at least
6 two out of the plurality of glass members are joined.

1 10. The glass bulb of claim 1,
2 wherein a panel unit glass member that forms the
3 panel unit is designed to be physically strengthened.

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1 11. A glass bulb for a cathode-ray tube comprising: a panel
2 unit having a panel screen; a neck unit holding an electron
3 gun; and a funnel unit having a funnel-like shape, wherein
4 the panel unit and the neck unit are bridged by the funnel
5 unit, wherein
6 physically strengthened glass is used in at least
7 part of the funnel unit.

1 12. A manufacturing method of a glass bulb for a cathode-ray
2 tube including: a panel unit having a panel screen; a neck
3 unit holding an electron gun; and a funnel unit having a
4 funnel-like shape, wherein the panel unit and the neck unit
5 are bridged by the funnel unit, the manufacturing method
6 comprising:

7 a glass member preparing step for preparing at least
8 one physically strengthened glass member for the funnel
9 unit, the funnel unit being formed from a plurality of glass
10 members; and

11 a glass bulb forming step for forming the glass bulb
12 from the plurality of glass members including the glass
13 member which is prepared in the glass member preparing step.

1 13. A cathode-ray tube device comprising:

2 a glass bulb for the cathode-ray tube including:
3 a panel unit having a panel screen; a neck unit holding
4 an electron gun; and a funnel unit having a funnel-like
5 shape, wherein the panel unit and the neck unit are bridged
6 by the funnel unit, wherein

7 the funnel unit is formed from a plurality of glass
8 members, the plurality of glass members including at least
9 a first glass member on a side of the panel unit and a second
10 glass member on a side of the neck unit, and

11 a maximum-to-minimum thickness ratio of each of the
12 plurality of glass members is designed to be within a range
13 suitable for producing the plurality of glass members using

14 pressing, the maximum-to-minimum thickness ratio being a
15 ratio of thickness of a thickest portion to thickness of
16 a thinnest portion.

1 14. The cathode-ray tube device of Claim.13,
2 wherein the plurality of glass members are prepared
3 by using a glass material conforming to EIAJ(Electronic
4 Industries Association of Japan)·LOF-03, and
5 in each of the plurality of glass members, the maximum
6 thickness is no more than substantially five times the
7 minimum thickness.

1 15. The cathode-ray tube device of Claim.13,
2 wherein at least one of the plurality of glass members
3 is designed to be physically strengthened.

1 16. The cathode-ray tube device of Claim.13,
2 wherein the plurality of glass members are joined
3 by sealing with a glass frit so that inside of the glass
4 bulb is kept in a vacuum state.

1 17. The cathode-ray tube device of Claim.13,
2 wherein a lead terminal is (a) connected to an
3 electrode formed on an inner surface of the funnel unit
4 and (b) extended to outside of the glass bulb through a
5 sealed portion, the sealed portion being where at least
6 two out of the plurality of glass members are joined.

1 18. A cathode-ray tube device comprising:
2 a glass bulb for the cathode-ray tube including:
3 a panel unit having a panel screen; a neck unit holding
4 an electron gun; and a funnel unit having a funnel-like
5 shape, wherein the panel unit and the neck unit are bridged
6 by the funnel unit, wherein
7 physically strengthened glass is used in at least
8 part of the funnel unit.